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EXAMINER	
BURGESS, BARBARA N	
ART UNIT	**PAPER NUMBER**
2157	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/733,996	CHASE ET AL.	
	Examiner	Art Unit	
	Barbara N. Burgess	2157	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 December 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14* is/are rejected.

7)☒ Claim(s) *7, 11* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *11 December 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *12-11-03*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement (IDS) submitted on December 11, 2003 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Objections

2. Claim 7 is objected to because of the following informalities: third limitation recites "each set of metrics". Examiner understands this to be "each set of hit rate metrics". Appropriate correction is required.

3. Claim 11 is objected to because of the following informalities: third limitation recites "each set of metrics". Examiner understands this to be "each set of hit rate metrics". Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Mangipudi et al. (hereinafter "Man", US Patent Application Publication 2004/0162901 A1).

As per claim 1, Man discloses an autonomic request routing policy selection system comprising:

- a plurality of pre-configured request routing policies (paragraphs [0011, 0017, 0025, 0045], Man teaches routing requests based on user-defined policies for the class assignment of the requests. The policies are stored in a database kept by the policy engine);
- a data store of cache metrics for said pre-configured request routing policies (paragraphs [0019-0020, 0055-0056], Man teaches storing parameters such as memory utilization, total hits per second, disk size, etc. in a database kept by the policy engine. These parameters are used in routing requests and policy decisions);
- a routing policy selector configured for communicative linkage to a server cluster comprising a plurality of servers and programmed to select a particular one of said request routing policies for use in routing content requests in said server cluster based upon said cache metrics, said routing policy selector further comprising a coupling to said routing policies and said data store of cache metrics (paragraphs [0018, 0020, 0037, 0039], Man teaches a routing host (router) having a policy engine used to make routing decisions using parameters and defined policies. The router is connected to server host

referred to as cluster. It also keeps a database with policies and parameters used to make routing decisions).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 2-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mangipudi et al. (hereinafter "Man", US Patent Application Publication 2004/0162901 A1) in view of Applicant's Admitted Prior Art (AAPA).

As per claim 2, Man does not explicitly discloses the system of claim 1, wherein said pre-configured request routing policies comprise a Layer 4 request routing policy and a Layer 7 request routing policy.

However, the use and advantages of Layer 4 and Layer 7 request routing policies are well known to one of ordinary skill in the art the at the time the invention was made as evidenced by AAPA (Specification paragraphs [0003, 0005-0006]).

Therefore, one of ordinary skill in the art at the time the invention was made would have found it obvious to implement or incorporate AAPA's request routing policies comprise a Layer 4 request routing policy and a Layer 7 request

routing policy in Man's system enabling URL hashing to be performed and routing requests to lightly loaded servers (AAPA, Specification paragraphs [0005-0006]).

As per claim 3, Man does not explicitly discloses the system of claim 2, wherein said Layer 4 request routing policy comprises a server load balancing type policy. However, the use and advantages of Layer 4 request routing policy comprises a server load balancing type policy is well known to one of ordinary skill in the art the at the time the invention was made as evidenced by AAPA (Specification, paragraphs [0005, 0008]).

Therefore, one of ordinary skill in the art at the time the invention was made would have found it obvious to implement or incorporate AAPA's Layer 4 request routing policy comprises a server load balancing type policy in Man's system in order to balance the load and route requests to lightly loaded servers (AAPA, Specification, paragraphs [0005, 0008]).

As per claim 4, Man does not explicitly discloses the system of claim 2, wherein said Layer 7 request routing policy comprises a content localizing type policy. However, the use and advantages of Layer 7 request routing policy comprises a content localizing type policy is well known to one of ordinary skill in the art the at the time the invention was made as evidenced by AAPA (Specification, paragraphs [0008- 0009]).

Therefore, one of ordinary skill in the art at the time the invention was made would have found it obvious to implement or incorporate AAPA's Layer 7 request routing policy comprises a content localizing type policy in Man's system enabling URL hashing to be performed (AAPA, Specification, paragraphs [0008-0009]).

As per claim 5, Man does not explicitly discloses the system of claim 4, wherein said content localizing type policy comprises a uniform resource locator (URL) hashing policy.

However, the use and advantages of content localizing type policy comprises a uniform resource locator (URL) hashing policy is well known to one of ordinary skill in the art the at the time the invention was made as evidenced by AAPA (Specification, paragraphs [0008- 0009]).

Therefore, one of ordinary skill in the art at the time the invention was made would have found it obvious to implement or incorporate AAPA's content localizing type policy comprises a uniform resource locator (URL) hashing policy in Man's system enabling URL hashing to be performed (AAPA, Specification, paragraphs [0008-0009]).

As per claim 6, Man does not explicitly discloses the system of claim 1, wherein said cache metrics comprises a plurality of Zipf- like analyses based upon different selected alpha values for different workloads imposed upon said server cluster according to different ones of said request routing policies.

However, AAPA teaches requests to retrieve Web objects follow a Zipf-like distribution. Zipf-like behavior is used for selecting a request routing policy in a server cluster (Specification paragraphs [0007-0008]).

Therefore, one of ordinary skill in the art at the time the invention was made would have found it obvious to implement or incorporate AAPA's Zipf-like analyses in Man's system in order to cache highly effective popular static and thus cacheable objects (AAPA, Specification, paragraph [0007]).

8. Claims 7-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mangipudi et al. (hereinafter "Man", US Patent Application Publication 2004/0162901 A1) in view of Yang et al. (hereinafter "Yang", US Patent Application Publication 2002/0199014 A1).

As per claim 7, Man discloses an autonomic request routing policy selection method comprising the steps of:

- identifying a cache allocation for said coupled server cluster (paragraphs [0019, 0055], Man teaches monitoring and reporting memory utilization including total memory, memory used, free memory of the cluster);
- retrieving at least two sets of hit rate metrics, each set of metrics corresponding to a particular routing policy (paragraphs [0019-0020, 0026, 0038], Man teaches reporting to the policy engine total hits second, CPU utilization, response times of servers, URL/content availability. These are all sets of hit rate metrics. The policy engine uses these parameters in policies

to route requests. Policies are class of service (CoS) and service level agreement (SLA);

- selecting said preferred routing policy for use in routing content requests to said server cluster (paragraphs [0018, 0044-0045, 0059, 0062], Man teaches routing requests based on cluster/class policy).

Man does not explicitly disclose:

- identifying a contemporary trace footprint experienced by a coupled server cluster;
- comparing said hit rate metrics based upon said identified trace footprint and said identified cache allocation to determine a preferred routing policy.

However, in an analogous art, Yang teaches identifying the machines in the cluster and their memory space (cache allocation). Yang further teaches monitoring and tracing (trace footprint) web traffic of the server cluster for four months. Characteristics (hit rate metrics) of the URL requests are used to evaluate processing time. These measurements and results are stored in the URL table and used to make routing decisions (paragraphs [0017, 0027, 0033, 0046-0047, 0049]).

Therefore, one of ordinary skill in the art at the time the invention was made would have found it obvious to implement or incorporate Yang's identifying a contemporary trace footprint experienced by a coupled server cluster and comparing said hit rate metrics based upon said identified trace footprint and said identified cache allocation to determine a preferred routing policy in Man's method enabling content-aware routing so that properties of the URL in each

request can be known and used in routing requests (Yang, paragraphs [0017, 0027]).

As per claim 8, Man, in view of Yang, discloses the method of claim 7. Man further discloses the method further comprising the steps of:

- computing with said hit rate metrics, an optimal server cluster configuration for said preferred routing policy (paragraphs [0038, 0044, 0055], Man teaches distributing incoming traffic to the most available and/or efficient server within each class or cluster. Clusters are created based upon capabilities of the computers that host them as well as business policies);
- provisioning an optimal number of servers in said server cluster based upon said computed optimal server cluster configuration (paragraphs [0038, 0044, 0055], Man teaches clusters are created based upon capabilities of the computers that host them as well as business policies).

As per claim 9, Man discloses the method of claim 7, wherein said selecting step comprises the step of selecting a server load balancing type routing policy (paragraph [0046]).

Man does not explicitly disclose when said identified cache allocation approaches in value said identified trace footprint.

However, in an analogous art, Yang teaches identifying the machines in the cluster and their memory space (cache allocation). Yang further teaches

monitoring and tracing (trace footprint) web traffic of the server cluster for four months. Characteristics (hit rate metrics) of the URL requests are used to evaluate processing time. These measurements and results are stored in the URL table and used to make routing decisions (paragraphs [0017, 0027, 0033, 0046-0047, 0049]).

Therefore, one of ordinary skill in the art at the time the invention was made would have found it obvious to implement or incorporate Yang's when said identified cache allocation approaches in value said identified trace footprint in Man's method enabling content-aware routing so that properties of the URL in each request can be known and used in routing requests (Yang, paragraphs [0017, 0027]).

As per claim 10, Man does not explicitly discloses the method of claim 7, wherein said selecting step comprises the step of selecting a content localizing type routing policy when either said identified cache allocation is small, or when said trace footprint is large.

However, Yang teaches identifying the size and number of files on Web sites requested. The processing of the file is measured. This information is stored in the URL table. The table shows if the URL is larger than levels and used to route the URL requests (paragraphs [0026, 0047-0049]).

Therefore, one of ordinary skill in the art at the time the invention was made would have found it obvious to implement or incorporate selecting step

comprises the step of selecting a content localizing type routing policy when either said identified cache allocation is small, or when said trace footprint is large Yang's in Man's method enabling content-aware routing so that properties of the URL in each request can be known and used in routing requests (Yang, paragraphs [0017, 0027]).

As per claim 11, Man discloses a machine readable storage having stored thereon a computer program for autonomic request routing policy selection, the computer program comprising a routine set of instructions which when executed by the machine cause the machine to perform the steps of:

- identifying a cache allocation for said coupled server cluster (paragraphs [0019, 0055], Man teaches monitoring and reporting memory utilization including total memory, memory used, free memory of the cluster);

- retrieving at least two sets of hit rate metrics, each set of metrics corresponding to a particular routing policy (paragraphs [0019-0020, 0026, 0038], Man teaches reporting to the policy engine total hits second, CPU utilization, response times of servers, URL/content availability. These are all sets of hit rate metrics. The policy engine uses these parameters in policies to route requests. Policies are class of service (CoS) and service level agreement (SLA);

- selecting said preferred routing policy for use in routing content requests to said server cluster (paragraphs [0018, 0044-0045, 0059, 0062], Man teaches routing requests based on cluster/class policy).

Man does not explicitly disclose:

- identifying a contemporary trace footprint experienced by a coupled server cluster;

- comparing said hit rate metrics based upon said identified trace footprint and said identified cache allocation to determine a preferred routing policy.

However, in an analogous art, Yang teaches identifying the machines in the cluster and their memory space (cache allocation). Yang further teaches monitoring and tracing (trace footprint) web traffic of the server cluster for four months. Characteristics (hit rate metrics) of the URL requests are used to evaluate processing time. These measurements and results are stored in the URL table and used to make routing decisions (paragraphs [0017, 0027, 0033, 0046-0047, 0049]).

Therefore, one of ordinary skill in the art at the time the invention was made would have found it obvious to implement or incorporate Yang's identifying a contemporary trace footprint experienced by a coupled server cluster and comparing said hit rate metrics based upon said identified trace footprint and said identified cache allocation to determine a preferred routing policy in Man's method enabling content-aware routing so that properties of the URL in each

request can be known and used in routing requests (Yang, paragraphs [0017, 0027]).

As per claim 12, Man, in view of Yang discloses the machine-readable storage of claim 11. Man further discloses the machine-readable storage further comprising the steps of:

- computing with said hit rate metrics, an optimal server cluster configuration for said preferred routing policy (paragraphs [0038, 0044, 0055], Man teaches distributing incoming traffic to the most available and/or efficient server within each class or cluster. Clusters are created based upon capabilities of the computers that host them as well as business policies);
- provisioning an optimal number of servers in said server cluster based upon said computed optimal server cluster configuration (paragraphs [0038, 0044, 0055], Man teaches clusters are created based upon capabilities of the computers that host them as well as business policies).

As per claim 13, Man discloses the machine-readable storage of claim 11, wherein said selecting step comprises the step of selecting a server load balancing type routing policy.

Man does not explicitly disclose when said identified cache allocation approaches in value said identified trace footprint.

However, in an analogous art, Yang teaches identifying the machines in the cluster and their memory space (cache allocation). Yang further teaches monitoring and tracing (trace footprint) web traffic of the server cluster for four months. Characteristics (hit rate metrics) of the URL requests are used to evaluate processing time. These measurements and results are stored in the URL table and used to make routing decisions (paragraphs [0017, 0027, 0033, 0046-0047, 0049]).

Therefore, one of ordinary skill in the art at the time the invention was made would have found it obvious to implement or incorporate Yang's when said identified cache allocation approaches in value said identified trace footprint in Man's method enabling content-aware routing so that properties of the URL in each request can be known and used in routing requests (Yang, paragraphs [0017, 0027]).

As per claim 14, Man does not explicitly discloses the machine readable storage of claim 11, wherein said selecting step comprises the step of selecting a content localizing type routing policy when either said identified cache allocation is small, or when said trace footprint is large.

However, Yang teaches identifying the size and number of files on Web sites requested. The processing of the file is measured. This information is stored in the URL table. The table shows if the URL is larger than levels and used to route the URL requests (paragraphs [0026, 0047-0049]).

Therefore, one of ordinary skill in the art at the time the invention was made would have found it obvious to implement or incorporate selecting step comprises the step of selecting a content localizing type routing policy when either said identified cache allocation is small, or when said trace footprint is large Yang's in Man's method enabling content-aware routing so that properties of the URL in each request can be known and used in routing requests (Yang, paragraphs [0017, 0027]).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Barbara N. Burgess whose telephone number is (571) 272-3996. The examiner can normally be reached on M-F (8:00am-4:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ario Ettinene can be reached on (571) 272-4001. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Barbara N Burgess
Examiner
Art Unit 2157

November 8, 2007